
Science Flight Report

Operation IceBridge Arctic 2012



Flight: F06
Mission: North Pole Transect

Flight Report Summary

Aircraft	P-3B (N426NA)
Flight Number	7
Flight Request	12P006
Date	Wednesday, March 21, 2012 (Z)
Purpose of Flight	Operation IceBridge Mission North Pole Transect
Take off time	11:04 Zulu from Thule Air Base (BGTL)
Landing time	18:58 Zulu at Thule Air Base (BGTL)
Flight Hours	8.1 hours
Aircraft Status	Airworthy.
Sensor Status	All installed sensors operational.
Significant Issues	None
Accomplishments	<ul style="list-style-type: none">• Low-altitude survey (1,500 ft AGL) of sea ice transects over the Arctic Basin.• Completed entire mission as planned.• Collected data along a CryoSat-2 orbit 40 minutes after the spacecraft had passed overhead.• ATM, snow and Ku-band radars, gravimeter, magnetometer, DMS and KT-19 skin temperature sensor were operated on the survey lines.• MCoRDS and accumulation radars were not in operation on this flight due to the sea ice mission.• Several pitch and roll maneuvers over sea ice for snow and Ku-band radar calibration.• Conducted a ramp pass at Thule at 1000 ft AGL for ATM calibration.
Geographic Keywords	Arctic Ocean, Arctic Basin, Lincoln Sea, North Pole
Satellite Tracks	CryoSat-2 orbit 10346
Repeat Mission	None

Science Data Report Summary

Instrument	Instrument Operational			Data Volume	Instrument Issues
	Survey Area	Entire Flight	High-alt. Transit		
ATM	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	56 GB	None
MCoRDS	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	N/A	N/A
Snow Radar	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	510 GB	None
Ku-band Radar	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	510 GB	None
Accumulation Radar	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	N/A	N/A
DMS	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	117 GB	None
KT-19 Skin Temp.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	7.6 MB	None
Gravimeter	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	1.5 GB	None
Magnetometer	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	120 MB	None

Mission Report (Michael Studinger, Mission Scientist)

This is a new mission, designed to sample sea ice far from the coastal areas, in areas which have been undersampled in previous IceBridge campaigns. The weather was good along the survey line and we did not lose any data due to clouds, except for a few minutes at the end along the coast of Ellesmere Island, where poor horizontal visibility and terrain prevented save low-altitude operation. We often flew under dense cloud cover, but stayed at 1500 ft AGL the entire time. At 12:23 Z we started collecting data at 1500 ft before the start of the line at waypoint 102461. CryoSat-2 had flown this line at 11:43 Z, 40 minutes before we started collecting data. At 14:39 Z we flew over the North Pole continued on to waypoint NP03A and finished surveying at 17:24 Z 18 nautical miles before waypoint NP04.

Individual instrument reports from experimenters on board the aircraft:

ATM: Both ATM systems worked well and collected good data along the entire line in cloud free conditions. The backup CAMBOT system was installed and worked fine. The backup laser for the ATM T3 narrow scanner worked fine as well. ATM collected a total of 5.7 hours of science data and got 100% coverage during the low-altitude parts of data collection.

MCoRDS: The MCoRDS system was not operated on this flight due to the sea ice mission.

Snow and Ku-band radar: The snow and Ku-band worked well and collected data along the entire line with the new (primary) system. 10 minutes of data were lost during a disk change.

Accumulation radar: The system was not operated on this flight due to the sea ice mission.

Gravimeter: Worked well. No issues.

Magnetometer: Worked well. No issues

DMS: DMS worked well and collected close to 16,000 frames.

KT-19 skin temperature sensor: System worked well.

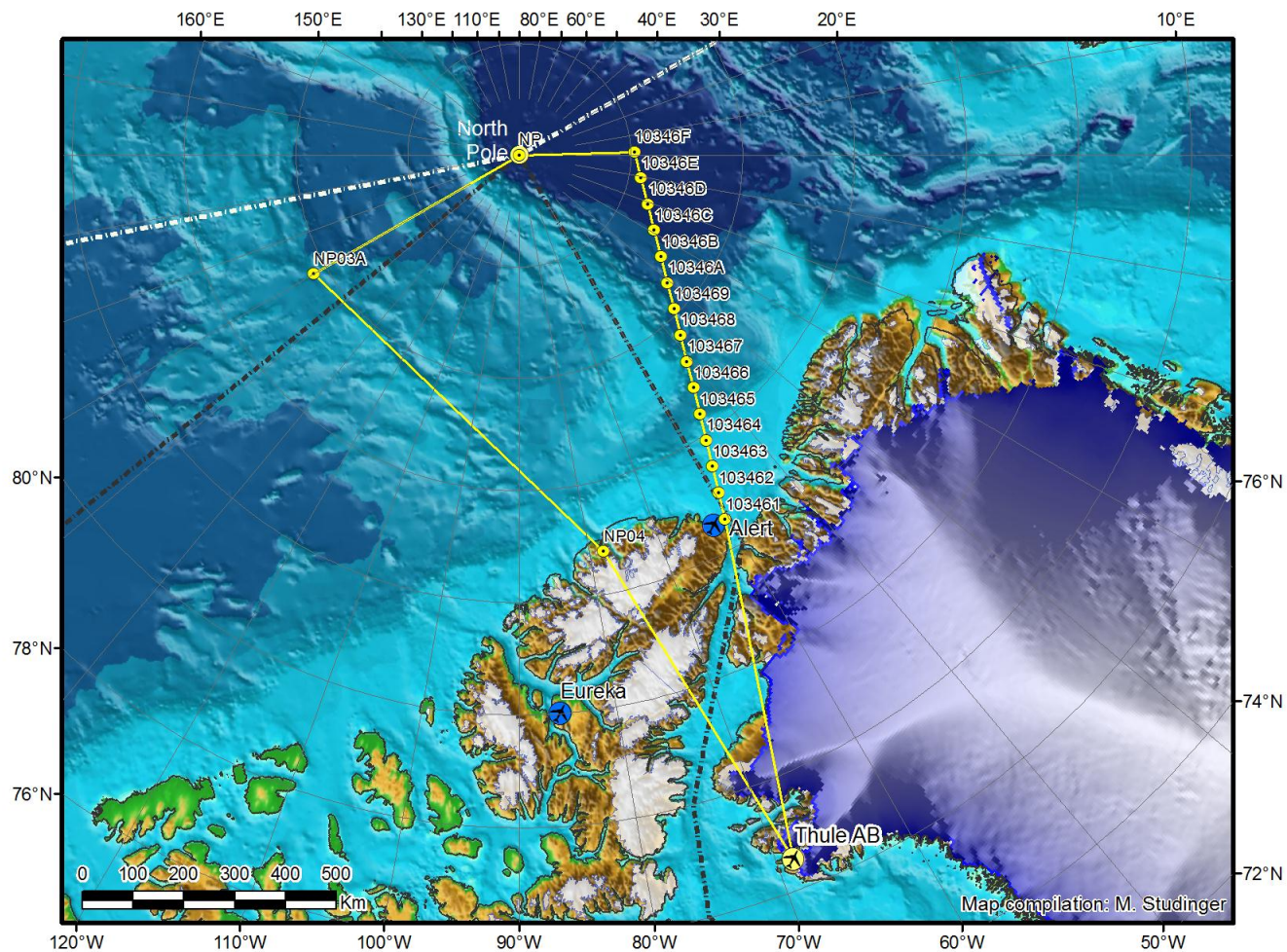


Figure 1: Today's sea ice mission plan (yellow) over the North Pole and along CryoSat-2 orbit 10346.

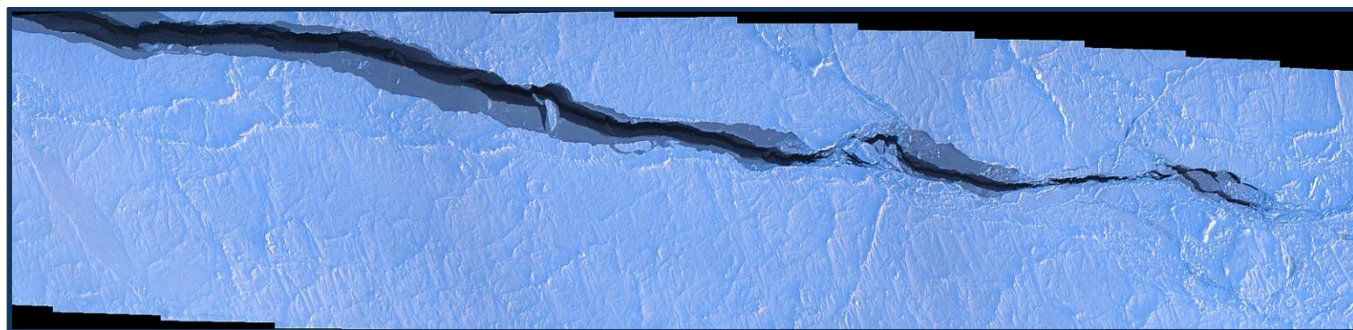


Figure 2: DMS mosaic from Eric Fraim showing leads in sea ice between waypoints NP03A and NP04.